

Claims

1. (Currently Amended) A method for estimating the impact of one or more promotions on product performance for a product, comprising the steps of:

- a. determining one or more market events which may impact said product performance;
- b. ~~examining said determined one or more market events to detect any abnormal event and, if one or more abnormal events are detected; generating a description for each detected abnormal event; generating descriptions for said product performance and said one or more promotions;~~
- c. examining said product performance and said one or more promotions to detect and remove any data abnormalities;
- ed. determining a relationship between each of said one or more promotions and said product;
- de. systematically detecting a promotion lag structure between said one or more promotions and said product performance for said product;
- ef. selecting one or more functional forms to account for any impact of each of said one or more determined market events which may impact said product performance;
- fg. evaluating each of said selected functional forms to account, if necessary, for said one or more determined market events, and
- gh. quantifying a relationship between said one or more promotions and said product performance for said product by taking into account said evaluated selected functional forms.

2. (Currently Amended) The method of claim 1, further comprising the step of checking for any multicollinearity problems between any of said one or more promotions, ~~said product performance~~, and said evaluated selected functional forms.

3. (Original) The method of claim 2, wherein said relationship between said one or more promotions and said product performance includes a quantified portion and a residual portion, and further comprising the step of evaluating said residual portion to detect auto-correlation.

4. (Currently Amended) The method of claim 3, further comprising the step of evaluating and validating said quantified ~~relationship~~ portion.

5. (Original) The method of claim 1, wherein said product is a pharmaceutical product, and said market event determining step comprises manually determining one or more pharmaceutical market events which may impact said pharmaceutical product performance.

6. (Currently Amended) The method of claim 5, wherein said abnormality examining step comprises generating statistical descriptions of said pharmaceutical product performance, statistically determining whether any of said one or more pharmaceutical ~~market events~~ product performance data is an abnormal event and, if one or more data abnormalities ~~abnormal events~~ are detected; ~~generating statistical descriptions for each detected abnormal event~~ removing said pharmaceutical product performance data abnormalities.

7. (Currently Amended) The method of claim 6, wherein said relationship determining step comprises determining a relationship between each of said one or more promotions and said product to be a relationship selected from the group consisting of multiplicative, or additive, ~~or other~~.

8. (Currently Amended) The method of claim 1, wherein said promotion lag detection step comprises:

- a. fitting a univariate auto-regressive model to each of said one or more promotions to determine one or more promotion residual series;
- b. regressing performance information for said product to determine a product residual;
- c. transforming said product residual into a product residual series;
- d. determining one or more cross- correlation functions between said one or more promotion residual series and said product residual series;
- e. plotting said one or more cross- correlation functions to detect any lagged effect from said one or more promotions corresponding to said one or more cross- correlation functions; and

f. selecting one or more ~~appropriate~~ functional forms which best fits said plotted functions.

9. (Currently Amended) The method of claim 1, wherein said functional form selection step comprises:

- a. plotting pharmaceutical product sales ~~verses~~ versus time to determine if there is any temporal relationship; and
- b. if said any temporal relationship exists, selecting said functional form by examining said plotted data.

10. (Original) The method of claim 1, wherein said functional form evaluation step comprises graphical evaluation.

11. (Currently Amended) A system for estimating the impact of one or more predetermined promotions on product performance for a product by taking into account one or more predetermined market events which may impact said product performance, comprising:

- a. means for generating descriptions of said product performance and said one or more predetermined promotions;
 - ab. means for examining said predetermined one or more ~~market events~~ promotions and said product performance to detect any abnormal ~~event~~ data and for generating a description for each detected abnormal event, if any removing data abnormalities;
 - bc. means for determining a relationship between each of said one or more predetermined promotions and said product;
 - ed. means, responsive to said abnormality descriptions generated by said abnormality examining means and said determined relationships from said relationship determining means , for systematically detecting a promotion lag structure between said one or more promotions and said product performance for said product based on said abnormality descriptions and said determined relationships;
 - de. means, responsive to said predetermined market events, for selecting one or more functional forms to account for any impact of each of said one or more predetermined market

events which may impact said product performance;

ef. means, responsive to said selected functional forms generated by said selection means, for evaluating each of said selected functional forms to account, if necessary, for said one or more determined market events, and

fg. means, responsive to said detected promotion lag structure and evaluated selected functional forms, for quantifying a relationship between said one or more promotions and said product performance for said product by taking into account said promotion lag structure and evaluated selected functional forms.

12. (Currently Amended) The system of claim 11, further comprising means, responsive to said quantified relationships, for checking for any multicollinearity problems between any of said one or more promotions, ~~said product performance~~, and said evaluated selected functional forms.

13. (Original) The system of claim 11, wherein said relationship between said one or more promotions and said product performance includes a quantified portion and a residual portion, and further comprising means, responsive to said quantified relationships, for evaluating said residual portion to detect auto-correlation.

14. (Currently Amended) The system of claim 11, further comprising means, responsive to said quantified relationships, for evaluating and validating said quantified ~~relationship~~ portion.

15. (Currently Amended) The system of claim 11, wherein said product is a pharmaceutical product, and said abnormality examining means includes means for generating statistical descriptions of said pharmaceutical product performance, means for statistically determining whether any data of said one or more pharmaceutical ~~market events~~ product performance is an abnormal event and, if one or more data abnormalities are detected, means for removing said pharmaceutical product performance data abnormalities.

16. (Currently Amended) The system of claim 11, wherein said promotion lag detection means further includes:

a. means for fitting a univariate auto-regressive model to each of said one or more

promotions to determine one or more promotion residual series;

b. means for regressing performance information for said product to determine a product residual;

c. means, responsive to said product residual determined by said regressing performance means, for transforming said product residual into a product residual series;

d. means, responsive to said product residual series transformed by said transforming means and to said promotion residual series determined by said fitting means, for determining one or more cross- correlation functions between said one or more promotion residual series and said product residual series;

e. means, responsive to said one or more cross- correlation functions determined by said cross-correlation function determining means, for plotting said one or more cross- correlation functions to detect any lagged effect from said one or more promotions corresponding to said one or more cross- correlation functions; and

f. means, responsive to said plotting means, for selecting one or more ~~appropriate~~ functional forms which best fits said plotted functions.

17. (Currently Amended) The system of claim 11, wherein said functional form selection means includes:

a. means for plotting pharmaceutical product sales data ~~verses~~ versus time to determine any temporal relationship, if present; and

b. means, responsive to said plotting means, for selecting said functional form by examining said plotted data if said any temporal relationship exists.